

Appin. No. 09/744,343
Amendment dated May 5, 2004
Reply to Office Action of November 6, 2003

REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

The November 6, 2003 Office Action and the Examiner's comments have been carefully considered. In response, claims are amended, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

PRIOR ART REJECTIONS

In the Office Action claims 1, 2 and 5 are rejected under 35 USC 103 as being unpatentable over Japanese Patent Publication No. JP 06-267,855 (Suzuki) in view of Japanese Patent No. 19-129,553 A (Minagawa), USP 5,094,885 (Selbrede) and USP 5,458,322 (Kulkaski et al.). Claim 4 is rejected under 35 U.S.C. 103 as being unpatentable over Suzuki in view of Minagawa, Selbrede and Kulkaski et al., and further in view of European Patent Application No. 840,358 (Balance et al.)

In response, claim 1 is amended to specifically recite that the epitaxial growth furnace includes means for rotating each of the wafer holders within the chamber wherein the wafer holders are rotatably supported at the peripheral thereof within the

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chamber, and wherein the means for rotating each of the wafer holders includes a rotating fin having a plurality of vanes attached onto the outer peripheral of each of the wafer holders, and rotating gas supply means for blowing a fin rotating gas to the vanes to cause the wafers to be rotated about a rotation axis along with each of the wafer holders within the chamber.

Amended claim 1 recites that the wafer holders are rotatably supported at the peripheral thereof within the chamber and the rotation mechanism includes a rotating fin (3) including a plurality of vanes attached onto the outer peripheral of each of the wafer holders. This feature is clearly supported by paragraphs 0029, 0031 and 0047 and Figs. 1 and 2 of the present application. This feature makes it possible for each of the wafer holders to be rotated without a central shaft which extends along a center axis of each of the holders through the chamber walls. Also, a reference gas for epitaxial growth reaction, e.g., hydrogen gas or inert gas can be used as the fin rotating gas, and in case the fin rotating gas is concurrently used for cooling the wafer holders, the temperature of the holders can be maintained at a relatively low level with the result that not only can the heaters be arranged in the positions which are very close to the respective wafers thus ensuring efficient heating of the wafers, but also the construction of the apparatus as a whole

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can be made more compact (see para. 0047 of the present application).

Suzuki, Minagawa, Selbrede and Kulkaski et al. do not disclose, teach or suggest "central shaft-less rotation" of the wafer holder as defined by amended claim 1.

EP 0 840 358 A2 (Balance et al.) disclose a wafer support structure (108) which includes an edge ring (134) resting on a rotatable tubular quarter cylinder (136). The bottom of the cylinder is held by an annular upper bearing race (141) which rests on a plurality of ball bearings (137) that are held within a stationary annular lower bearing race (139). Balance et al., however, do not disclose the rotation drive mechanism in detail. More specifically, Balance et al. do not disclose, teach or suggest means for rotating wafer holders which includes a rotating fin including a plurality of vanes attached onto the outer peripheral of each of said wafer holders and rotating gas supply means for blowing a fin rotating gas to said vanes to cause said wafers to be rotated about a rotation axis along with each of said wafer holders within said chamber, as defined by amended claim 1.

Moreover, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to modify the

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teachings of the cited references to arrive at the present
claimed invention as defined by claim 1.

In view of the foregoing, claim 1 is patentable over the
cited references under 35 USC 102 as well as 35 USC 103.

Claims 2, 4 and 5 are either directly or indirectly
dependent on claim 1 and are patentable over the cited references
in view of their dependence on claim 1 and because the references
do not disclose, teach or suggest each of the limitations set
forth in claims 2, 4 and 5.

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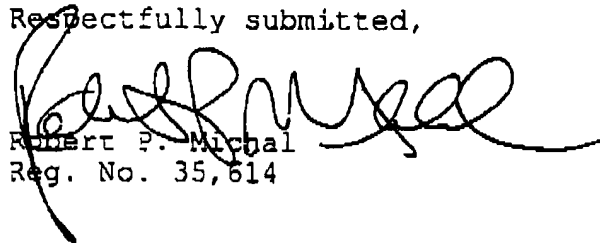
Entry of this Amendment, allowance of the claims and the
passing of this application to issue are respectfully solicited.

If the Examiner disagrees with any of the foregoing, the
Examiner is respectfully requested to point out where there is
support for a contrary view.

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If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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Encl.: Petition For Extension of Time